II. Remarks

Claims 11-22 and 24-35 are pending in the present application. Claims 11, 24, and 35 have been amended. Claims 11 and 35 have been amended to recite "a plastic substrate for membrane image transfer and an ink printed by membrane image transfer on the substrate." Claim 24 has been amended for clarity. For example, the preamble has be amended to recite a method of transferring "by membrane image transfer." With the remarks provided below, the Applicants respectfully request reconsideration and a withdrawal of all rejections.

Case Interview

The Applicants thank Examiners Ferguson and Hirshfeld for the case Interview conducted on December 14, 2006.

Rejections Under 35 U.S.C. § 103

In one embodiment, the present invention provides inks and a method of printing the inks by a membrane image transfer (MIT) printing process. In this embodiment, the inks exhibit the rheological properties to achieve optimum performance in an MIT printing process. Generally, an MIT printing process is a method of printing that combines both screen printing and pad printing (tampography) into one method for the decoration of articles with complex shapes. *See* specification of present application, paragraphs [0021] through [0023] and Figures 3a-3d.

Responsive to the rejections of claims 11-13, 15, and 35 under 35 U.S.C. § 103(a) based on the combination of *Thakrar et al.* (U.S. Patent No. 6,284,161) and *Li et al.* (U.S. Patent No. 4,631,122), the combination does not teach or suggest all of the limitations recited in each of amended claims 11 and 35. For example, each of claims 11 and 35 recites a plastic substrate for a membrane image transfer (MIT) and an ink printed/adhered by membrane image transfer on the substrate for replacement of metallic or glass articles. Contrarily, *Thakrar et al.* is absent any teachings of a plastic substrate and an ink printed/adhered by MIT on the substrate. Rather, *Thakrar et al.* merely teaches a casting mold temporarily having an ink

pattern thereon for a process of making contact lenses. *See Thakrar et al.*, col. 3, lines 32-36 and col. 4, lines 26-39. The process taught in *Thakrar et al.* involves a mechanical altering and softening of the surface of resin/colorant capsules. Moreover, the solvent of the ink pattern in *Thakrar et al.* is then evaporated, leaving on the mold surface a deposition in which insoluble colorant particles are encapsulated in the resin. *Thakrar et al.*, col. 5, lines 7-26. Thereafter a monomer is poured into the mold to form the lens. At that point, a mechanical altering and softening of the surface of the individual resin/colorant capsules takes place. *Id.* That is, the monomer penetrates the interstices between the capsules and thereabout, so that the capsules become impregnated in the monomer matrix with the pattern remaining intact. *Id.* Additionally, the pattern is not printed on the mold as in the claimed invention, but rather a thin layer of monomer interposes itself between the resin/colorant capsules and the casting mold surface.

> As an extension of this phenomenon, a thin layer of monomer interposes itself between the resin/colorant capsules and the casting mold surface, so that when the finished lens is subsequently removed from the mold, the surface is a substantially intact layer of lens forming material, with the printed pattern of resin/colorant capsules located beneath said surface, but closely adjacent thereto.

Id. (emphasis added).

Furthermore, in the case interview, the Examiners again stated that they broadly defined the meaning of "an ink printed on a substrate" to include both a final substrate as well as any transient substrate used in a printing process, e.g., a casting mold. However, if the ink of the present invention were dried or cured during a printing process on a transient substrate, the printing process would not function as intended. The casting mold in *Thakrar et al.* and the anterior and posterior molds (6, 7) in *Li et al.* are each a transient substrate during the printing process. In a membrane image transfer process, the comparable transient substrate would be the soft deformable membrane (218) used to transfer the ink to the surface of a final plastic article (220) as described in the specification of the present application. Page 7, paragraph [0023]. The inventors being their own lexicographer do not intend to include transient articles upon which the ink is printed. For example, a membrane image transfer article refers to the result (220) of the MIT process and not a transient component therein as described in the present application. Col. 3, lines 67-75. The

inventors' intention is further inferred in the specification (page 27, paragraph [0062]) by defining the printing capability of an ink as being partially determined via the percentage of ink transfer, the thickness of the print, and the adhesion of the print. In this example, the ink is transferred from the transient substrate to the final article (specification, page 27, paragraph [0062]). If the ink of the present application were dried or cured during a printing process on a transient substrate, the printing process would not function as intended.

Contrary to the Examiner's assertions, it would not have been obvious to provide and test the ranges as claimed in amended claims 11 and 35. As provided in the background, there are significant differences between screen printing and pad printing with respect to composition of ink utilized. *See* Specification, paragraph [0005], page 2. Typically, inks used in such application methods are different in their solvent makeup. In order not to dry in the screen, the ink formulations used in screen printing contains solvents having evaporation rates lower than those used in pad printing inks. *Id.* Most commercial screen printing and pad printing inks will not feasibly function in a printing process that combines both conventional printing techniques into one, such as membrane image transfer printing. *Id.* In pad printing ink formulations, solvent evaporation is utilized to modify rheological properties and surface tension in order to provide a "tacky" film on the pad during transfer. *Id.*

Thus, given the differences in properties of the inks and unexpected results, the inks recited in claims 11 and 35 for MIT printing is non-obvious. Specification paragraph [0005], pages 2-3. Furthermore, as mentioned in the specification of the present application, the ink systems that are compatible with a MIT printing process were surprisingly found to exhibit a specific range of thixotropic, compliance, dynamic, and yield stress properties. Specification, paragraph [0027], page 10. Thus, it would not have been obvious to one of ordinary skill in the art to provide and test the ranges as claimed in claim 11.

Claims 12-22 generally depend from independent claim 11. Thus, claims 12-22 are allowable for the reasons provided above.

Responsive to the rejections of claims 24-34 under 35 U.S.C. § 103(a), the combination does not teach or suggest all of the elements recited in amended claim

24. For example, claim 24 recites providing an ink comprising a hydrocarbon solvent and a synthetic polymeric resin. The cited references, alone or in combination, do not teach or suggest such limitations. Thus, the combination fails to teach or suggest all the elements of amended claim 24.

For the reasons provided above, it is non-obvious to provide and test the ranges as claimed in claim 24. Moreover, there is no suggestion or motivation to combine the references cited.

Claims 25-34 generally depend from independent claim 24. Thus, claims 25-34 are allowable for the reasons provided above.

Thus, claims 11-22 and 24-35 are in a condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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Date

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